

D.) AMENDMENTS TO THE DRAWINGS

The attached drawing sheet includes a new Figure 10 showing a detachable connector as required by the Examiner. The specification has been amended herein to incorporate the new Figure 10. Applicant submits that no new matter is introduced because support for the Figure and the amendments is found in claim 14 of the application as originally filed.

Attachment: New Sheet – Figure 10

E.) REMARKS

This Response is filed in response to the Office Action dated January 21, 2005.

Upon entry of this Response, claims 1-16 and 18-23 will be pending in the Application.

In the outstanding Office Action, the Examiner objected to the drawings; objected to the specification; objected to claims 2, 4-11, 14, 16-18 and 20-23; rejected claims 2, 4, 5, 7, and 8 under 35 U.S.C. 112, second paragraph; rejected claims 1-10 and 16 under 35 U.S.C. 102(b) as being anticipated by Zeller et al. (U.S. Patent No. 6,055,292); rejected claims 17, 20, 22 and 23 under 35 U.S.C. 102(b) as being anticipated by Doebert et al. (U.S. Patent No. 5,511,106); rejected claims 11, 14 and 15 under 35 U.S.C. § 103(a) as being unpatentable over Zeller et al. (U.S. Patent No. 6,055,292) in view of Doebert et al. (U.S. Patent No. 5,511,106); rejected claims 12 and 13 under 35 U.S.C. § 103(a) as being unpatentable over Zeller et al. (U.S. Patent No. 6,055,292) and Doebert et al. (U.S. Patent No. 5,511,106) in further view of Fairleigh (U.S. Patent No. 5,997,176); and rejected claims 18, 19 and 21 under 35 U.S.C. § 103(a) as being unpatentable over Doebert et al. (U.S. Patent No. 5,511,106) in view of Doebert et al. (U.S. Patent No. 6,570,953).

REJECTION UNDER 35 U.S.C. 102

A. Rejection of claims 1-10 and 16

The Examiner rejected claims 1-10 and 16 under 35 U.S.C. 102(b) as being anticipated by Zeller et al. (U.S. Patent No. 6,055,292), hereinafter referred to as "Zeller."

Specifically, the Examiner stated that

19. Regarding Claims 1 and 16, Zeller teaches a dental x-ray diagnostic apparatus and method for operating same for performing real-time digital radiography of a patient skull (Figure 2), comprising:
 - a. a base frame to for supporting the apparatus (Figure 7 and Column 2, line 55, the incorporated reference corresponding to US 5,511,106);

- b. a sliding frame which is capable of sliding vertically along the base frame which is operated by an independent actuator under microcomputer control (Figure 7);
- c. a rotary frame (Figure 7, "Rotary Unit") coupled to the sliding frame by a cinematic unit (2), and supporting an x-ray source (3) at one end, and an x-ray imager (8) at the other end;
- d. said cinematic unit, allowing execution of orbital movements of said x-ray source and said x-ray imager around the patient skull, characterized in that the orbital movement is composed of one rotation movement and two linear movements in a plane, driven by independent actuators controlled by data momentarily supplied from a microcomputer. (The cinematic elements are taught by Figure 7 of Zeller and by the incorporation of the reference above. US 5,511,106 additionally teaches the orbital movement (Column 3, lines 22-33) by showing the computer driven motors of the cinematic unit as having the orbital movement of EP 0 229 308, which corresponds to 4,811,372.)
- e. Image data is acquired by an x-ray imager, and digital processing of the image data for reconstruction of a diagnostic image also occurs (Column 5, lines 42-65).

Applicant respectfully traverses the rejection of claims 1-10 and 16 under 35 U.S.C. 102(b).

Zeller, as understood, is directed to a dental X-ray diagnostic apparatus for producing panorama tomograms. The apparatus contains a height-adjustable carrying column at which a rotary unit is held. The rotary unit carries an X-ray source and an X-ray detector camera that are diametrically opposite. A head retainer and positioning arrangement is also provided. The camera is composed of an oblong housing having a slot at its side facing toward the X-ray source. A detector arrangement having one or more radiation-sensitive detectors, for example in the form of CCD sensors, is located in the inside of the camera behind the slot. The detector arrangement is held inside the detector camera so as to be adjustable in the direction of its longitudinal axis. A diaphragm system, which contains the primary diaphragm, is held so as to be synchronously adjustable relative to the detector camera. The detector elements arranged in the inside of the detector camera can be adjusted along the principal detector axis with a suitable adjustment mechanism, such as with a stepping motor and a spindle. Via a serial interface, the stepping motor communicates with control electronics of the apparatus. Via a further interface, the control electronics forwards control commands to an actuating drive arranged at the X-ray

source. The synchronous adjustment of a primary diaphragm of the diaphragm system ensues with this actuating drive.

In contrast, independent claim 1 recites a dental x-ray diagnostic apparatus for performing real-time digital radiography of a patient skull, comprising: a base frame for supporting the apparatus; a sliding frame configured to move vertically along the base frame and the sliding frame being moved by an independent actuator under microcomputer control; a rotary frame coupled to the sliding frame by a cinematic unit, and the rotary frame supporting an x-ray source at one end, and an x-ray imager at the other end; the cinematic unit being configured to execute orbital movements of the x-ray source and the x-ray imager around the patient skull, wherein the orbital movements comprise one rotation movement and two linear movements in a plane, and the orbital movements of the x-ray source and the x-ray imager being driven by independent actuators in the cinematic unit controlled by data supplied from a microcomputer.

Independent claim 16 recites a method for operating a dental x-ray diagnostic apparatus performing real-time digital radiography, comprising the steps of: positioning a patient by a patient positioning system; irradiating a patient skull during an orbital movement of an x-ray source and an x-ray imager; performing acquisition of image data by the x-ray imager and digital processing of the image data for reconstruction of a diagnostic image; and wherein the orbital movement of the x-ray source and the x-ray imager being capable of one rotational movement and two linear movements in a plane, and the orbital movements of the x-ray source and the x-ray imager being driven by independent actuators in the cinematic unit controlled by data supplied from a microcomputer.

The examiner is reminded that “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.’ *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).” See Manual of Patent Examining Procedure, 8th Edition (MPEP), Section 2131.

In addition, “[t]he identical invention must be shown in as complete detail as is contained in the ... claim.’ *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).” See MPEP, Section 2131.

Several of the features recited by Applicant in independent claims 1 and 16 are not taught or suggested by Zeller. First, Zeller does not teach or suggest that the orbital movements comprise (or are capable of) one rotation movement and two linear movements in a plane as recited by Applicant in independent claims 1 and 16. The apparatus in Zeller only discloses a rotational movement and, at best, one linear movement, i.e., movement in the vertical direction, but clearly does not discuss two linear movements in a vertical plane as recited by Applicant in independent claims 1 and 16. The Examiner is asked to identify the specific teaching in Zeller that teaches two linear movements in a vertical plane as recited by Applicant in independent claims 1 and 16.

The Examiner alleges that the orbital movements recited by Applicant in independent claims 1 and 16 are disclosed in Zeller through a showing in a corresponding European reference corresponding to U.S. Patent 4,811,372. First, as discussed above, to maintain a rejection of anticipation the claim (e.g., claims 1 and 16) must be disclosed in a single reference. In the outstanding office action, the Examiner is using at least two references to attempt to anticipate Applicant's claims by referencing the European/U.S. reference in addition to Zeller. Next, the Examiner alleges that the additional references in Zeller have been "incorporated by reference." However, the Examiner has failed to identify any passage in Zeller that indicates that the additional references have been incorporated by reference into Zeller. The Examiner is reminded that "[m]ere reference to another application, patent, or publication is not an incorporation of anything therein into the application containing such reference for the purpose of the disclosure required by 35 U.S.C. 112, first paragraph. *In re de Seversky*, 474 F.2d 671, 177 USPQ 144 (CCPA 1973)." (emphasis added) See MPEP, Section 608.01(p). Finally, the Examiner has not identified any passage in U.S. Patent 4,811,372, even if it has been incorporated into Zeller, which Applicant submits that it has not, that teaches or suggests two linear movements in a vertical plane as recited by Applicant in independent claims 1 and 16.

In addition, since Zeller does not teach or suggest all of Applicant's orbital movements, Applicant submits that Zeller cannot teach or suggest independent actuators for each of the movements as recited by Applicant in independent claims 1 and 16. Thus, since Zeller does not teach or suggest all of the limitations recited in independent claims 1 and 16, Applicant

respectfully submits that Zeller does not anticipate Applicant's invention as recited in independent claims 1 and 16. Therefore, for the reasons given above, independent claims 1 and 16 are believed to be distinguishable from Zeller and therefore are not anticipated nor rendered obvious by Zeller.

Dependent claims 2-10 are believed to be allowable as depending from what is believed to be an allowable independent claim 1 for the reasons given above. In addition, claims 2-10 recite further limitations that distinguish over the applied art. In conclusion, it is respectfully submitted that claims 1-10 and 16 are not anticipated nor rendered obvious by Zeller and are therefore allowable.

B. Rejection of claims 17, 20, 22 and 23

The Examiner rejected claims 17, 20, 22 and 23 under 35 U.S.C. 102(b) as being anticipated by Doeber et al. (U.S. Patent No. 5,511,106), hereinafter referred to as "Doeber."

Specifically, the Examiner stated that

30. Regarding claim 17, Doeber teaches a method for operating a dental x-ray diagnostic apparatus performing real-time digital radiography in Cephalography, comprising the steps of: aligning the x-ray source with the x-ray imager, either manually or automatically (Column 3, lines 36-47); positioning the patient by the relevant patient positioning system (Column 3, lines 16-21); irradiating the patient skull (Column 8, lines 59-63).

31. Regarding Claim 20, Doeber teaches, as above for claim 17, a method for operating a dental x-ray diagnostic apparatus performing real-time digital radiography in Cephalography, and further teaches the steps of: setting a collimator format for a narrow x-ray beam laying in a vertical plane (Column 6, lines 20-27); starting a scanning process during which the x-ray beam is linearly translated through a patient skull in a horizontal (Y) direction by a coherent horizontal movement of the primary x-ray collimator and the x-ray imager under computer control (Column 6, lines 28-51 and Figure 7, item 40); and, performing acquisition of the image data by the x-ray imager, and computer processing (Column 9, lines 8-13) for the reconstruction of the diagnostic image.

32. Regarding claims 22 and 23, Doeber teaches, as above for claims 17 and 20, a method for operating a dental x-ray diagnostic apparatus performing real-time digital radiography in Cephalography, and further teaches the steps of: setting a collimator format for a narrow x-ray beam laying in a horizontal plane; and starting a scanning process during which the x-ray beam is linearly translated through a patient skull in a vertical (V) direction by a coherent horizontal movement of the primary x-ray collimator and the x-ray imager under computer control (Column 5, line 36-Column 6, line 8).

Applicants respectfully traverse the rejection of claims 17, 20, 22 and 23 under 35 U.S.C. 102(b). Claim 17 has been canceled herein thereby rendering the rejection thereagainst moot.

Doeber, as understood, is directed to an x-ray diagnostics installation for producing x-ray exposures of body parts of a patient and has a height-adjustable carrying column at which a rotatory unit is held, forming a carrier for a line detector camera arranged diametrically opposite a radiation source. The line detector camera contains an x-ray detector arranged behind a slot-shaped opening. The line detector camera can be horizontally or vertically arranged. An adjustment system adjusts the line detector camera relative to the body part such that the slot opening is moved along the body part, whereby the fan beam limited by the radiation diaphragm of the radiation source is moved synchronously relative to the camera motion. The carrying column is height-adjustable with a drive, and the rotatory unit can be turned and pivoted with one or more drives.

In contrast, independent claim 20 recites a method for operating a dental x-ray diagnostic apparatus performing real-time digital radiography in cephalography, comprising the steps of: aligning an x-ray source with an x-ray imager, either manually or automatically, wherein the step of aligning the x-ray source with an x-ray imager includes the step of relocating the x-ray imager, either manually or automatically, from a Panoramic position to a Cephalographic position; positioning a patient by a patient positioning system; setting a collimator to provide a narrow x-ray beam laying in a vertical plane; starting a scanning process during which the x-ray beam is linearly translated through a patient skull in a horizontal (Y) direction by a coordinated horizontal movement of the collimator and the x-ray imager under computer control; and performing acquisition of image data by the x-ray imager, and computer processing for reconstruction of a diagnostic image.

Independent claim 22 recites a method for operating a dental x-ray diagnostic apparatus performing real-time digital radiography in cephalography, comprising the steps of: aligning an x-ray source with an x-ray imager, either manually or automatically, wherein the step of aligning the x-ray source with an x-ray imager includes the step of relocating the x-ray imager, either manually or automatically, from a Panoramic position to a Cephalographic position; positioning a patient by a patient positioning system; setting a collimator to provide a narrow x-ray beam laying in a horizontal plane; starting a scanning process during which the x-ray beam is linearly translated through a patient skull in a vertical (V) direction by a coordinated vertical movement of the collimator and the x-ray imager under computer control; and performing acquisition of image data by the x-ray imager, and computer processing for reconstruction of a diagnostic image.

Independent claim 23 recites a method for operating a dental x-ray diagnostic apparatus performing real-time digital radiography in cephalography, comprising the steps of: aligning an x-ray source with an x-ray imager, either manually or automatically; positioning a patient by a patient positioning system; setting a collimator to provide a narrow x-ray beam; starting a scanning process during which the x-ray beam is rotationally translated through a patient skull by a coordinated rotational movement of the collimator and the x-ray imager under computer control, while the x-ray source is fixed in position; and performing acquisition of image data by the x-ray imager, and computer processing for reconstruction of a diagnostic image.

The examiner is reminded that “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.’ *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).” See MPEP, Section 2131.

In addition, “[t]he identical invention must be shown in as complete detail as is contained in the ... claim.’ *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).” See Section 2131.

Several of the features recited by Applicant in independent claims 20, 22 and 23 are not taught or suggested by Doeber. First, with regard to claims 20 and 22, Doeber does not teach or suggest the step of aligning the x-ray source with an x-ray imager includes the step of

relocating the x-ray imager, either manually or automatically, from a Panoramic position to a Cephalographic position as recited by Applicant in independent claims 20 and 22. The system in Doeber has one embodiment for pan exposures and a second embodiment for ceph exposures, but does not disclose any technique or structure to relocate the imager between positions for the two different types of exposures as recited by Applicant in independent claims 20 and 22. Thus, since Doeber does not teach or suggest all of the limitations recited in independent claims 20 and 22, Applicant respectfully submits that Doeber does not anticipate Applicant's invention as recited in independent claims 20 and 22.

With regard to claim 23, Doeber does not teach or suggest the step of starting a scanning process during which the x-ray beam is rotationally translated through a patient skull by a coordinated rotational movement of the collimator and the x-ray imager under computer control, while the x-ray source is fixed in position as recited by Applicant in independent claim 23. The system in Doeber discusses that the rotary unit can be rotated, but fails to discuss the rotary movement of the diaphragms and the camera without moving the radiator as recited by Applicant in independent claim 23. Thus, since Doeber does not teach or suggest all of the limitations recited in independent claim 23, Applicant respectfully submits that Doeber does not anticipate Applicant's invention as recited in independent claim 23.

Therefore, for the reasons given above, independent claims 20, 22 and 23 are believed to be distinguishable from Doeber and therefore are not anticipated nor rendered obvious by Doeber.

REJECTION UNDER 35 U.S.C. 103

A. Rejection of claims 11, 14 and 15

The Examiner rejected claims 11, 14 and 15 under 35 U.S.C. § 103(a) as being unpatentable over Zeller in view of Doeber.

Applicants respectfully traverse the rejection of claims 11, 14 and 15 under 35 U.S.C. § 103(a).

Zeller is directed a dental X-ray diagnostic apparatus as discussed in greater detail above.

Doebert is directed to an x-ray diagnostics installation as discussed in greater detail above.

Applicant submits that dependent claims 11, 14 and 15 are distinguishable from Zeller and/or Doebert for at least the following reasons. To begin, dependent claims 11, 14 and 15 are believed to be distinguishable from Zeller and/or Doebert as depending from what is believed to be an allowable independent claim 1 as discussed above. Furthermore, there is nothing in Doebert that teaches or suggests any of the limitations in independent claim 1 not taught or suggested by Zeller.

In conclusion, it is respectfully submitted that claims 11, 14 and 15 are not anticipated nor rendered obvious by Zeller and/or Doebert and are therefore allowable.

B. Rejection of claims 12 and 13

The Examiner rejected claims 12 and 13 under 35 U.S.C. § 103(a) as being unpatentable over Zeller and Doebert in further view of Fairleigh (U.S. Patent No. 5,997,176), hereafter referred to as "Fairleigh."

Applicants respectfully traverse the rejection of claims 12 and 13 under 35 U.S.C. § 103(a).

Zeller is directed a dental X-ray diagnostic apparatus as discussed in greater detail above.

Doebert is directed to an x-ray diagnostics installation as discussed in greater detail above.

Fairleigh, as understood, is directed to an x-ray apparatus for producing a standard set of x-rays of a person's head while they are in a prone position.

Applicant submits that dependent claims 12 and 13 are distinguishable from Zeller, Doebert and/or Fairleigh for at least the following reasons. To begin, dependent claims 12 and 13 are believed to be distinguishable from Zeller, Doebert and/or Fairleigh as depending from what is believed to be an allowable independent claim 1 as discussed above. Furthermore, there is nothing in Fairleigh that teaches or suggests any of the limitations in independent claim 1 not taught or suggested by Zeller and/or Doebert.

In conclusion, it is respectfully submitted that claims 12 and 13 are not anticipated nor rendered obvious by Zeller, Doebert and/or Fairleigh and are therefore allowable.

C. Rejection of claims 18, 19 and 21

The Examiner rejected claims 18, 19 and 21 under 35 U.S.C. § 103(a) as being unpatentable over Doeber in view of Dobert et al. (U.S. Patent No. 6,570,953), hereafter referred to as "Dobert."

Specifically, the Examiner stated that

45. Regarding Claims 18 and 21, similarly to claims 20 and 22 above, Doeber teaches a method for operating a dental x-ray diagnostic apparatus performing real-time digital radiography in cephalography. The cephalograms are tomosynthetically produced (Doeber, Column 8, lines 55-58) and Doeber provides for the correction of image distortions (Column 9, lines 8-13).
46. Doeber does not include correction of the magnification distortion in the horizontal direction.
47. Dobert teaches magnification distortion correction of tomosynthetically produced images. The relationship between a detector and a source are tracked so that the rigidity of the requirements of the parts with respect to one another can be relaxed (Column 2). The image is then reconstructed using magnification distortion correction so that variations during the scan are accounted for (Column 6, lines 6-33) and so that blur-free recording are obtained (Column 3, lines 4-6).
48. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the magnification distortion correction of Dobert in the system of Doeber, since the correction can account for variations of the magnification during the scan (Dobert, Column 6, lines 6-33) so that blur-free recording are obtained (Dobert, Column 3, lines 4-6).
49. Regarding Claim 19, as above Doeber and Dobert teach relocating, either manually or automatically, a first or second x-ray imager (18) to a position aligned with an x-ray source for Cephalography (Doeber, Column 4, lines 51-67).

Applicants respectfully traverse the rejection of claims 18, 19 and 21 under 35 U.S.C. § 103(a).

Doeber is directed to an x-ray diagnostics installation as discussed in greater detail above.

Dobert, as understood, is directed to a method for making and reproducing a radiological tomogram of a subject.

In contrast, independent claim 18 recites a method for operating a dental x-ray diagnostic apparatus performing real-time digital radiography in cephalography, comprising the steps of: aligning an x-ray source with an x-ray imager, either manually or automatically; positioning a patient by a patient positioning system; setting a collimator to provide a narrow x-ray beam laying in a vertical plane; starting a scanning process during which the x-ray beam is linearly translated through a patient skull in a horizontal (Y) direction by a coordinated horizontal movement of the x-ray source and the x-ray imager under computer control; and performing acquisition of image data by the x-ray imager, and computer processing for-reconstruction of a diagnostic image, inclusive of correction of a magnification distortion in the horizontal direction.

Independent claim 21 recites a method for operating a dental x-ray diagnostic apparatus performing real-time digital radiography in cephalography, comprising the steps of: aligning an x-ray source with an x-ray imager, either manually or automatically, wherein the step of aligning the x-ray source with an x-ray imager includes the step of relocating the x-ray imager, either manually or automatically, from a Panoramic position to a Cephalographic position; positioning a patient by a patient positioning system; setting a collimator to provide a narrow x-ray beam laying in a horizontal plane; starting a scanning process during which the x-ray beam is linearly translated through a patient skull in a vertical (V) direction by a coordinated vertical movement of the x-ray source and the x-ray imager under computer control; and performing acquisition of the image data by the x-ray imager, and computer processing for the reconstruction of the diagnostic image, inclusive of correction of the magnification distortion in the horizontal direction.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

See MPEP § 2143.03.

Several of the features recited by Applicant in independent claims 18 and 21 are not taught or suggested by Doeber. Furthermore, there is nothing in Doeber that teaches or suggests

any of the limitations in independent claims 18 and 21 not taught or suggested by Doebert. First, with regard to claim 18, Doebert does not teach or suggest starting a scanning process during which the x-ray beam is linearly translated through a patient skull in a horizontal (Y) direction by a coordinated horizontal movement of the x-ray source and the x-ray imager under computer control as recited by Applicant in independent claim 18. The system in Doebert only discuss a pivoting or rotational movement of the radiator in a horizontal direction and does not discuss any linear translation of the radiator in a horizontal direction as recited by Applicant in independent claim 18. Next, there is nothing in Doebert that teaches or suggests the linear translation of the radiator in a horizontal direction as recited by Applicant in independent claim 18. The Examiner is asked to specifically identify the passage in Doebert or Dobert that teaches or suggests this limitation. Therefore, in view of the above, independent claim 18 is believed to be distinguishable from Doebert and/or Dobert and therefore is not anticipated nor rendered obvious by Doebert and/or Dobert.

With regard to claim 21, Doebert does not teach or suggest the step of aligning the x-ray source with an x-ray imager includes the step of relocating the x-ray imager, either manually or automatically, from a Panoramic position to a Cephalographic position as recited by Applicant in independent claim 21. The system in Doebert has one embodiment for pan exposures and a second embodiment for ceph exposures, but does not disclose any technique or structure to relocate the imager between positions for the two different types of exposures as recited by Applicant in independent claim 21. Next, there is nothing in Dobert that teaches or suggests relocating the imager between positions for the two different types of exposures as recited by Applicant in independent claim 21. Therefore, in view of the above, independent claim 21 is believed to be distinguishable from Doebert and/or Dobert and therefore is not anticipated nor rendered obvious by Doebert and/or Dobert.

Applicant submits that dependent claim 19 is distinguishable from Doebert and/or Dobert for at least the following reasons. To begin, dependent claim 19 is believed to be distinguishable from Doebert and/or Dobert as depending from what is believed to be an allowable independent claim 18 for the reasons discussed above.

In conclusion, it is respectfully submitted that claims 18, 19 and 21 are not anticipated nor rendered obvious by Doeber and/or Dobert and are therefore allowable.

REJECTION UNDER 35 U.S.C. 112

The Examiner rejected claims 2, 4, 5, 7, and 8 under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter applicant regards as the invention.

Specifically, the Examiner stated that

16. Claims 2, 4, 5, 7 and 8 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. Evidence that claims 2, 4, 5, 7 and 8 fail(s) to correspond in scope with that which applicant(s) regard as the invention can be found in the specification. Applicant has stated that a digital x-ray imager replaces a conventional x-ray film thereby eliminating x-ray film from the present invention, and this statement indicates that the invention is different from what is defined in the claim(s) because the claims reference a film plane as part of the invention. Since the film has been removed, there is no structural relationship between the absent film and the imagers. The device may have an imaging plane, but this is not claimed nor described.

Applicant respectfully traverses the rejection of claims 2, 4, 5, 7, and 8 under 35 U.S.C. 112, second paragraph.

In response thereto, Applicant has amended claims 2, 4, 5, 7, and 8 to remove the reference to the film plane and to describe the active area of the x-ray imagers in terms relating to either a conventional radiographic film, as discussed in the specification, (claims 2 and 4) or to the x-ray imager as shown in the Figures and described in the specification (claims 5, 7 and 8) in a manner that is believed to clearly set forth the subject matter Applicant regards as its invention and to overcome the Examiner's rejection.

Therefore, in view of the above, Applicant submits that claims 2, 4, 5, 7, and 8 are not indefinite and comply with the provisions of 35 U.S.C. 112, second paragraph, and therefore are allowable.

OBJECTION TO THE CLAIMS

The Examiner objected to claims 2, 4-11, 14 and 16-23 for various informalities. Specifically, the Examiner stated that

6. Claims 2, 4-11, 14, 16-18 and 20-23 are replete with errors and lack proper antecedent basis for certain limitations. Limitations are introduced using "the", and are not introduced using "a" or "an." Examples of improper introduction are "the x-ray field" and "the film plane", both of which do not appear in claim 1. Claims 4-11, 14, 16-18 and 20-23 have similar errors.
7. Claims 5 and 8 are further objected to for misspelling "highth" or "height".
8. Claim 8 is further objected to since the term "useful" does not convey a structural limitation.
9. Claim 14 is objected to for referencing a detachable connector, for which there is no antecedent to the specification or drawings.
10. Claim 16 is further objected to for referencing "same data" instead of "image data."
11. Claim ~~also~~ 17 has also not been properly punctuated with a period at the end and appears incomplete.
12. Claims 20, 22 and 23 also reference a "primary x-ray collimator", though only a collimator is previously introduced. Appropriate correction is required.
13. Claims 18 and 20-23 also refer to "coherent" movements. This is an unconventional use of the term and Examiner suggests the use of a term such as "integral" or "coordinated".
14. Claim 19 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 19 is dependent upon itself. For examination purposes, it will be treated as being dependent upon Claim 18. Also, Claim 19 attempts to remove the claim limitation drawn to an alignment of a second x-ray imager without ever properly introducing a second x-ray imager. The removal of the limitation is improper, as is the lack of antecedent basis for the limitation. In order to claim the use of the first x-ray imager, a separate independent claim, or dependent claims written alternatively, should be constructed. For examination purposes, Claim 19 will be treated as having properly claimed the use of the first and second x-ray imagers in the alternative.

In response thereto, Applicant has amended claims 2, 4-11, 14 and 16-23, as appropriate, to provide proper antecedent basis, correct misspellings, and correct claim dependencies in a manner believed to overcome the objections of the Examiner.

OBJECTION TO THE SPECIFICATION

The Examiner objected to the specification for failing to provide proper antecedent basis for the claimed subject matter. Specifically, the Examiner stated that

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: There is no antecedent for claim 8 to describe the "half the minimum useful height of the x-ray field" and its relationship to the film plane of a second x-ray imager. It is not clear how the film plane and x-ray imager are arranged with respect to the x-ray field. There is also no antecedent for the detachable connector of claim 14. The specification refers to rigid connections only.
4. The specification and drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification and/or drawings.

In response thereto, Applicant has amended the specification to provide proper antecedent basis for the language of claims 8 and 14 and to provide the corresponding reference and description of new Figure 10. It is submitted that no new matter has been added by the amendments to the specification because support for the amendments can be found in claims 8 and 14 of the application as originally filed. Furthermore, the language identified by the Examiner in claim 8 has been canceled herein, thereby rendering that portion of the objection moot. Applicant has also amended the specification in attempt to correct any minor errors that may have been present in the specification.

Therefore, in view of the above it respectfully requested that the Examiner reconsider and withdraw the objection to the specification.

OBJECTION TO THE DRAWINGS

The Examiner objected to the drawings under 37 C.F.R. § 1.83(a) as not showing every feature of the invention specified in the claims. Specifically, the Examiner stated that

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the x-ray field plane and its relationship to the second x-ray imager as claimed in claims 2, 4, 5, 7 and 8 must be shown or the feature(s) canceled from the claim(s). The detachable connector of claim 14 should also be shown. No new matter should be entered.

In response thereto, Figure 10 has been added, as shown in the enclosed new drawing sheet, to show the detachable connector. It is submitted that no new matter has been added by the addition of Figure 10 because support for Figure 10 can be found in claim 14 of the application as originally filed.

With regard to the Examiner's requirement that the "x-ray field plane and its relationship to the second x-ray imager" be shown or canceled from the claims, Applicant has canceled the claim language objected to by the Examiner and replaced it with language describing the active area that Applicant believes is supported by the specification, drawings and claims.

Therefore, in view of the above it respectfully requested that the Examiner reconsider and withdraw the objection to the drawings.

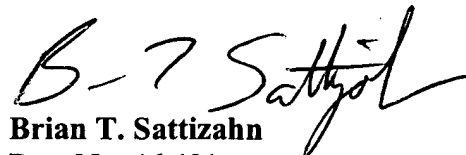
CONCLUSION

In view of the above, Applicant respectfully requests reconsideration of the Application and withdrawal of the outstanding objections and rejections. As a result of the amendments and remarks presented herein, Applicant respectfully submits that claims 1-16 and 18-23 are not anticipated by nor rendered obvious by Zeller, Doeber, Fairleigh, Dobert or their combination and thus, are in condition for allowance. As the claims are not anticipated by nor rendered obvious in view of the applied art, Applicant requests allowance of claims 1-16 and 18-23 in a timely manner. If the Examiner believes that prosecution of this Application could be expedited by a telephone conference, the Examiner is encouraged to contact the Applicant.

The Commissioner is hereby authorized to charge any additional fees and credit any overpayments to Deposit Account No. 50-1059.

Respectfully submitted,
McNEES, WALLACE & NURICK

By



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